

## ABSTRACT OF THE DISCLOSURE

5       Tire pyrolysis systems and processes are provided which include feeding tire  
shreds to a pyrolysis reactor, pyrolyzing the shreds in a pyrolysis reactor to produce a  
hydrocarbon-containing gas stream and carbon-containing solid, removing the carbon-  
containing solid from the reactor, directing the hydrocarbon-containing gas stream into a  
separator, contacting the hydrocarbon-containing gas stream with an oil spray in the separator  
thereby washing particulate from the hydrocarbon-containing gas stream and condensing a  
10   portion of the gas stream to oil, removing and cooling the oil from the separator, directing non-  
condensed gas from the gas stream away from the separator, and directing a portion of the  
cooled oil removed from the separator to an inlet of the separator for use as the separator oil  
spray. A process is also provided in which solids from the pyrolysis reactor are directed to an  
auger having a pressure which is greater than the pressure in the pyrolysis reactor, and in which  
15   non-condensed gas from the gas stream after condensing a portion of the gas is directed to at  
least one burner in heat exchange relation with the pyrolysis reactor, and burned to heat the  
reactor and generate an effluent flue gas, a portion of which effluent flue gas is cooled and  
injected into the auger which is a trough auger in one embodiment.

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